Bellwork: 1/11/13

Perform the indicated operation

1) $(2-9i)-(3+4i)$

$2-9i-3-4i$

$-1-13i$

2) $(1-5i)(3+2i)$

$3+2i-15i-10i^2$ (-1)

$3+2i-15i+10$

$13-13i$

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26) $(9+4i)^2$

$(9+4i)(9+4i)$

$81+36i+36i+16i^2$ (-1)

$81+72i-16$

$65+72i$

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Algebra 2B - Imaginary & Complex Numbers

☺ In order to simplify a fraction containing complex numbers, you need to use the *conjugate of a complex number*.

Conjugate of a Complex Number

The **conjugate of a complex number $a+bi$ is $a-bi$

Example 3: Simplify $\frac{2+5i}{2-3i}$. Write your answers in standard form.

$\frac{(2+5i)}{(2-3i)}\cdot\frac{(2+3i)}{(2+3i)} = \frac{4+6i+10i+15i^2}{4+6i-6i-9i^2}$ $(i^2=-1)$

$\frac{4+6i+10i-15}{4+9} = \frac{-11+16i}{13}$

YOU TRY: Simplify $\frac{3-4i}{2+i}$. Write your answers in standard form.

$\frac{(3-4i)}{(2+i)}\cdot\frac{(2-i)}{(2-i)} = \frac{6-3i-8i+4i^2}{4-2i+2i-i^2}$ $(i^2=-1)$

$\frac{2-11i}{5}$

YOU TRY: Simplify $\frac{3-2i}{-4+i}$. Write your answers in standard form.

$\frac{(3-2i)(-4-i)}{(-4+i)(-4-i)}$ $16+4i-4i-i^2$ $16+1$

$-12-3i+8i+2i^2$

$-12-3i+8i-2$

$\frac{-14+5i}{17}$

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Homework: pg 253 #8-12 all and 18-30 even

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